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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/879,722	06/12/2001	Yasufumi Ichikawa	33677	4905

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PEARNE & GORDON LLP
1801 EAST 9TH STREET
SUITE 1200
CLEVELAND, OH 44114-3108

EXAMINER	
PEREZ, ANGELICA	

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 11/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/879,722	ICHIKAWA, YASUFUMI	
	Examiner	Art Unit	
	Angelica M. Perez	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9/01/2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *25-38* is/are allowed.

6)☒ Claim(s) *1-24,39 and 40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see amendment filed on 9/01/2006, with respect to claim 7, page 3, have been fully considered and are persuasive. The rejection to claim 7 has been withdrawn. However, new grounds of rejections have been applied.

Allowable Subject Matter

2. Claims 25-38 are allowed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2, 13-14 and 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes (Malkemes et al.; WO 97/40584) in view of Igarashi (Igarashi et al.; 5,926,749 A) and further in view of (Nguyen et al.; 6,253,092 B1).

Regarding claims 1 and 13, Malkemes teaches of a transmission power control method, voltage controller and apparatus for controlling the power to transmit to the distant party (page 1, lines 11-15 and 22-24; column 1, lines 7-10 and figure 1), comprising the steps of: controlling a digital-to-analog converter for generating an analog baseband signal (page 4, lines 7-13; where control is exercised by having the stages in a fixed fashion; page 11, lines 9-10; e.g., " ...I and Q signals are applied to digital-to-analog converters..."), to be input to a modulator (page 11, lines 10-13;

where analog signals are inputted into the modulator in order to convert them into IF signals); modulating the baseband signal for frequency-converting the baseband signal to a modulated signal in an IF band (page 11, lines 10-13; e.g., "...modulated to an intermediate frequency"); inputting the modulated signal into an amplifier of an power amplifiers (page 6, lines 28-29), Malkemes further teaches of controlling a power amplifier for amplifying the transmission signal modulated by the modulator (page 11, lines 17-18; e.g., "the radio frequency signal is then applied to the transmit power amplifier..."). Malkemes further teaches where the amplified signal receives no further modulation (figure 2, items 160 and 190; where the signal is transmitted, after it is amplified for a last time, without further modulation).

Malkemes does not specifically teach of individually controlling each of a plurality of variable power amplifiers for variably amplifying the modulated signal for transmission without further modulation.

In related art, concerning an amplifier circuit having common AGC to IF and RF amplifiers for use in a transmitter, Igarashi teaches of individually controlling each of a plurality of variable power amplifiers for variably amplifying the modulated signal for transmission without further modulation (column 1, lines 24-26; where the apparatus exerts power control utilizing several power amplifiers; figure 4, items 2,3, 4 are individually controlled by V_{AGC1} and V_{AGC2}; also see figure 1, item 8, where the signal is amplified for a last time without being modulated after the amplification).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes's power control method and apparatus with Igarashi's variable

power amplifiers in order to provide an amplifier circuit suitable for a transmitter, which is capable of realizing a large dynamic range in a simple configuration, as taught by Igarashi.

Malkemes and Igarashi do not specifically teach of an adjustable digital-to-analog converter.

In related art, regarding a closed loop transmitter with DAC sensitivity adjusted to detector nonlinearity, Nguyen teaches of an adjustable digital-to-analog converter (columns 2, 3 and 4, lines 10-12, 51-63 and 43-50, respectively).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes and Igarashi's power control method and apparatus with Nguyen's adjustable digital-to-analog converter in order to "maximize the resolution of the reference input signal over a wide range of power levels", as taught by Nguyen.

Regarding claims 2 and 14, Malkemes, Igarashi and Nguyen teaches all the limitations of claims 1 and 13, respectively. Malkemes further teaches where a control ratio of the variable power amplifiers is modified and at least one of series and parallel control in a control range is made in the controlling a plurality of variable power amplifiers (figure 1, items 2, 3, 4, 6, 8; where the examiner has selected an arrangement in series from the choices given by the applicant).

5. Claims 3, 5-6, 15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Igarashi, further in view of Nguyen as applied to claims 1 and 13 above, and further in view of Fujita.

Regarding claims 3 and 15, Malkemes, Igarashi and Nguyen teach all the limitations of claims 2 and 14, respectively. Malkemes further teaches of circuit conditions between a portable

telephone and a base station being applied to the transmit output correction circuit (column 1, lines 58-67).

Malkemes, Igarashi and Nguyen do not specifically teach of a detection step of detecting a state of at least one of a local station and a distant station; and a modification step of modifying the control ratio according to the detected state.

In related art concerning a mobile communication transmitter capable of selectively amplifying amplifiers, Fujita teaches of a detection step of detecting a state of at least one of a local station and a distant station; and a modification step of modifying the control ratio according to the detected state (column 7, lines 28-30 and column 13, lines 19- 47; where the detected states relate to position).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Igarashi and Nguyen's power control method and apparatus with Fujita's detecting a state and ratio control modification in order to provide a transmitter for mobile communication that can provide a high efficiency for a wide output dynamic range, as taught by Fujita.

Regarding claims 5 and 17, Malkemes, Igarashi and Nguyen teach all the limitations of claims 3 and 15, respectively.

Malkemes, Igarashi and Nguyen do not teach where the control ratio according to the state of at least one of the local station and the distant station is adaptively modified in the modification step.

Fujita further teaches where the control ratio according to the state of at least one of the local station and the distant station is adaptively modified in the modification step (columns 7, lines 28-30; changes are made as conditions change).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Igarashi and Nguyen's power control method and apparatus with Fujita's detected states of at least a local station and a distant station in order to provide a transmitter for mobile communication that can provide a high efficiency for a wide output dynamic range, as taught by Fujita.

Regarding claims 6 and 18, Malkemes, Igarashi and Nguyen teach all the limitations of claims 1 and 13, respectively.

Malkemes, Igarashi and Nguyen do not specifically teach where a control sensitivity of each of the plurality of variable power amplifiers differs from each other.

Fujita further teaches where a control sensitivity of each of the plurality of variable power amplifiers differs from each other (figure 1, items 2, 3 and 4; where it is inherent of variable power amplifiers to differ regarding control sensitivity due to physical conditions such as position, interference, etc. See US Patent No.: 6,411,825; column 9, lines 34-39).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Igarashi and Nguyen's power control method and apparatus with Fujita's sensitivity control of the amplifiers in order to being able to perform better power adjustments.

6. Claims 4 and16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Igarashi and Fujita, further in view of Nguyen and further in view of Davidovici (Davidovici et al.; US Patent No.: 5,963,583).

Regarding claims 4 and 16, Malkemes, Igarashi, Fujita and Nguyen teach all the limitations of claims 3 and 15, respectively.

Malkemes Igarashi, Fujita and Nguyen do not teach where a plurality of the states of at lest one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step.

In related art, concerning fussy-logic adaptive power control, Davidovici teaches of a plurality of the states of at lest one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step (columns 3 and 4, lines 18-20, 34-39 and 53-60; where the interference is indicated by the S/N ratio and the states are based on position).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Igarashi, Fujita and Nguyen variable power control method with Davidovici's Fuzzy-logic controller as an alternative method to manage the constantly changing detection states and to indicate the amount by which to increase or decrease transmitted power, as taught by Davidovici.

7. Claims 7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of Fujita (Fujita, Masanori, EP 0,883,250 A2) and further in view of Shibahara (Shibahara, Masashi; JP Patent No.: JP357166711A).

Regarding claims 7 and 19, Malkemes teaches of a transmission power control method and apparatus for controlling the power to transmit to a distant party (page 1, lines 11-15 and 22-24; where the control of power in a long distance communication system is effectuated; column 1, lines 7-10 and figure 1). Malkemes further teaches of a power amplifier for amplifying a transmission signal (figure 2, item 160).

Malkemes does not specifically teach of a voltage controller for controlling the power amplifier via separate bias systems; and a control unit for controlling the plurality of voltage controllers.

In related art, concerning transmission power control, Fujita teaches of a voltage controllers for controlling the power amplifier via separate bias systems (figure 4, items 7a and 26 represent voltage controllers; where the examiner has considered the "amplifier" as a general term in the invention referring to the "variable amplifier" if this is not the case, then, the applicant has two different inventions. E.g., claims 1-6, 13-18 and 25-28 referring to a variable power amplifier; and claims 7-12, 19-24, 32-38 referring to a single amplifier; amplifier. Figure 4, items 24 and 25 represent the separate bias systems); and a control unit for controlling the plurality of voltage controllers (figure 4, item 9').

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes's power control method with Fujita's voltage controller in order

to set the output power level of the output terminal of the circuit to a desired level, as taught by Fujita.

Malkemes and Fujita do not specifically teach of a plurality of voltage controllers.

In related art, concerning a power amplifier for a musical instrument, Shibahara teaches of a plurality of voltage controllers (paragraph 2).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes and Fujita's power control method with Shibahara's plurality of voltage controllers in order to in order to "output the maximum electric power against load variation", as taught by Shibahara.

Regarding claims 8 and 20, Malkemes, Fujita and Shibahara teach all the limitations of claims 7 and 19, respectively. Malkemes further teaches where a control ratio of the variable power amplifiers is modified and at least one of series and parallel control in a control range is made in the controlling a plurality of variable power amplifiers (figure 1, items 2, 3, 4, 6, 8; where the examiner has selected an arrangement in series from the choices given by the applicant).

Regarding claims 9 and 21, Malkemes, Fujita and Shibahara teach all the limitations of claims 8 and 20, respectively. Malkemes further teaches of circuit conditions between a portable telephone and a base station being applied to the transmit output correction circuit (column 1, lines 58-67).

Regarding claims 11 and 23, Malkemes, Fujita and Shibahara teach all the limitations of claims 9 and 21, respectively.

Malkemes, Fujita and Shibahara do not teach where the control ratio according to the state of at least one of the local station and the distant station is adaptively modified in the modification step.

Fujita further teaches where the control ratio according to the state of at least one of the local station and the distant station is adaptively modified in the modification step (columns 7, lines 28-30; changes are made as conditions change).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Fujita and Shibahara's power control method and apparatus with Fujita's detected states of at least a local station and a distant station in order to provide a transmitter for mobile communication that can provide a high efficiency for a wide output dynamic range, as taught by Fujita.

Regarding claims 6, 12, 18 and 24; Malkemes, Fujita and Shibahara teach all the limitations of claims 7 and 19, respectively.

Malkemes, Fujita and Shibahara do not specifically teach where a control sensitivity of each of the plurality of variable power amplifiers differs from each other.

Fujita further teaches where a control sensitivity of each of the plurality of variable power amplifiers differs from each other (figure 1, items 2, 3 and 4; where it is inherent of variable power amplifiers to differ regarding control sensitivity due to physical conditions such as position, interference, etc. See US Patent No.: 6,411,825; column 9, lines 34-39).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Fujita and Shibahara's power control method and apparatus

with Fujita's sensitivity control of the amplifiers in order to being able to perform better power adjustments.

8. Claims 10 and 22, are rejected under 35 U.S.C. 103(a) as being unpatentable over Malkemes in view of and Fujita, further in view of Shibahara and further in view of Davidovici (Davidovici et al.; US Patent No.: 5,963,583).

Regarding claims 10 and 22, Malkemes, Fujita and Shibahara teach all the limitations of claims 9 and 21, respectively.

Malkemes, Fujita and Shibahara do not teach where a plurality of the states of at lest one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step.

In related art, concerning fussy-logic adaptive power control, Davidovici teaches of a plurality of the states of at lest one of the local station and the destination station are detected in the detection step, where the control ratio is modified by using fuzzy control rules and fuzzy inference that are based on the plurality of states in the modification step (columns 3 and 4, lines 18-20, 34-39 and 53-60; where the interference is indicated by the S/N ratio and the states are based on position).

It would have been obvious to a one of ordinary skill in the art at the time the invention was made to combine Malkemes, Fujita and Shibahara variable power control method with Davidovici's Fuzzy-logic controller as an alternative method to manage the constantly changing detection states and to indicate the amount by which to increase or decrease transmitted power, as taught by Davidovici.

Regarding claims 39 and 40, Malkemes, Igarashi and Nguyen teach all the limitations of claims 1 and 13, respectively.

Igarashi further teaches where the plurality of variable power amplifiers are individually controlled such that a function of an output of the amplifier unit to a control voltage is substantially linear over a wider range of the control voltage than is a function of each one of said plurality of variable power amplifiers to the control voltage (columns 1 and 2, lines 62-67, 55-60).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine Malkemes, Igarashi and Nguyen's teachings with Igarashi's further teachings in order to accomplish a large dynamic range o voltages in a simple structure, as taugth by Igarashi.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Angelica Perez whose telephone number is 571-272-7885. The examiner can normally be reached on 6:00 a.m. - 2:30 p.m., Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either the PAIR or Public PAIR. Status information for unpublished applications is available through the Private PAIR only. For more information about the pair system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). Information regarding Patent Application Information Retrieval (PAIR) system can be found at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600's customer service number is 703-306-0377.

11-13-06

LANA LE
PRIMARY EXAMINER

Angelica Perez
Examiner

Art Unit 2618

November 9, 2006